

L-17018-66

ACC NR: AP6007271

a layer containing heterogeneities of electron density of characteristic dimensions. When the dimension of heterogeneities is much greater than the wavelength, the scattering action of heterogeneities deforms the phase of the wave. This method is good for studying point-shaped sources when their angular dimensions can be measured by observed scintillations. Scintillations occur when heterogeneities are moving with a definite velocity which causes the fluctuation of a radio wave at the observation point. The scintillation method made it possible to discover and measure angular dimensions of radiosources of 0.1". It is also applied to studies of the structure of the super-corona of the sun. Orig. art. has: 1 figure and 5 formulas. [EG]

SUB CODE: 03/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 005
ATD PRESS: 4207

Card 2/2 *MJS*

FINKEL'BRAND, S. B.

"Participation of the Vagus Nerve in the Innervation of the Intestines." Cand Biol Sci, Second Moscow Medical Inst, Moscow, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

FINKEL'BRAND, S. V.

Turbellaria; Nervous System

Structure of the receptors of the nervous system of Turbellaria Polycelis nigra. Dokl
AN SSSR 82 no. 6, 1952

SO: Monthly List of Russian Accessions, Library of Congress, July 195², Uncl.

Sov/68-59-10-6/24

AUTHORS: Tsypin, A.Z., Finkel'berg, G.Ye., and Sklifus, M.A.

TITLE: An Investigation of the Possibility of Decreasing the Temperature at the Top of Coke Ovens

PERIODICAL: Koks i khimiya, 1959, Nr 10, pp 25-26 (USSR)

ABSTRACT: The dependence of the temperature of the under-roof space on the temperature of the top of the coke charge was investigated in order to determine the possibilities of decreasing the temperature of the under roof space to 750-820°C (to prevent excessive pyrolysis of volatile products) without affecting the degree of readiness of the coke in the top part of the oven (temp 900-950°C). For this purpose three ovens in a battery were selected, where the temperature along the height of ovens was controlled by changes in the coefficient of excess air (α - 1.15; 1.25 and 1.34). Mean heating conditions of the experimental ovens - table 1, temperature difference along the height of heating flues - table 2, the distribution of temperature along the height of the tar line plane - table 3, and the distribution of temperatures in the under roof

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Sov/68-59-10-6/24

An Investigation of the Possibility of Decreasing the Temperature at the Top of Coke Ovens

space - table 4. It was found that on increasing the coefficient of excess air from 1.15 to 1.34, the temperature between the top and bottom in the tar line plane (0.6m and 3.5m from the oven sole) increased by about 100°C. This considerably deteriorated the degree of readiness of the coke in the top part of the oven. At the same time the temperature of the under roof space decreased by only 28°C. It is concluded that in the ovens of the PK-2K type, a decrease in the temperature of the under roof space cannot be obtained without simultaneously lowering the temperature of the top of the coke charge, therefore the latter should be kept at a required minimum. There are 4 tables.

ASSOCIATIONS: Teplotekhshtantsiya (A. Z. Tsypin)
Krivorozhskiy metallurgicheskiy zavod (Krivoy Rog
Metallurgical Works)

Card 2/2

FINKEL'BERG, N., inzh.

Cutter for removing protectors. Avt. transp. 38 no. 12:44
D '60.

(MIRA 13:12)

(Motor vehicles--Tires)

USSR / Human and Animal Morphology (Normal and Pathological).
Nervous System. Peripheral Nervous System.

S

Abs Jour : Ref Zhur - Biologiya, No 9, 1958, No. 40801

Author : Finkelbrandiene, S. B.

Inst : Vilniaus University

Title : Distribution of the Preganglionic Fibers of the Vagus
Nerves in the Intestines

Orig Pub : Mokslo darbai Vilniaus univ., 1955, 9, 75-84, Uch. tr.
Vil'nyusk. un-t, 1955, 9

Abstract : It was demonstrated with the aid of experimental de-
nervation and following impregnation of nerve elements
with salts of silver, that the preganglionic fibers of the
vagus nerve form the intracellular plexus in the intra-
mural ganglia of all sections of the small intestines
as well as synapses with the cells of Dogel, first type.
Within the second day following the section of the vagus

Card 1/2

USSR / Human and Animal Morphology (Normal and Pathological).
Nervous System. Peripheral Nervous System.

S

Ats Jour : Ref Zhur - Biologiya, No 9, 1958, No. 40801

nerve, deformation and pyknosis of the nuclei was noted in some cells of the first type as well as a disturbance of the staining characteristics and vacuolization of the cells with which degenerating synapses came in contact. Transneuronal degeneration of these cells took place on the twelfth day. The presence of modified nerve cells in the plexus of the small intestines permits evaluation of the extent of the distribution of the post-ganglionic fibers of the vagus nerve. Initial reactive changes occur in the cells of the second type of Dogel. -- I. V. Torskaya

Card 2/2

45

FINKELITE, FRIDA L'VOVNA

HUDERMAN, Arkadiy Georgievich, inzhener; FINKELITE, Frida L'vovna,
inzhener; SHEVYBER, A.K., inzhener, nauchnyy redaktor; VASIL'YEV,
L.V., redaktor; OSTRIROV, N.S., tekhnicheskiy redaktor

[Plastering] Shtukaturnye raboty. Moskva, Vses. uchebno-pedagog.
izd-vo Trudrezervisdat, 1956. 207 p. (MLRA 10:4)
(Plastering)

SHIRKOV, I.P., laureat Stalinskoy premii; FINKELITE, F.I., inzh.; KARDO-
-SYSOYEV, F.N., inzh., nauchnyy red.; TYAPKIN, B.G., red.izd-va;
KRYUGER, Yu.V., red.izd-va; BOROVNEV, N.F., tekhn.red.

[Album of drawings of equipment and devices for mechanized
transportation of bricks in packets] Al'bom chertezhei oboru-
dovaniia i prispособlenii dlia kompleksnoi mekhanizatsii dostavki
kirpicha paketami. Moskva, Gos. izd-vo lit-ry po stroit., arkhitekt.
i stroit. materialam, 1958. 117 p. (MIRA 12:1)
(Bricks--Transportation)

KUL'BATSKIY, A.P., inzh.; FINKEL'MAN, I.B., inzh; SVET, Ye.B., red.;
PROZOROVA, K.I., tekhn. red.

[Rolling-mill foreman] Master prokatnogo stana; iz opyta raboty
prokatnogo tsekha Cheliabinskogo metallurgicheskogo zavoda.
Cheliabinsk, Cheliabinskoe oblastnoe gos. izd-vo, 1952. 47 p.
(MIRA 14:12)

(Rolling mills)

(Metalworkers)

FINKEL'MAN, S.: SHISHKIN, A.

Use of grain drying and cleaning towers at grain procurement points in Saratov and Chelyabinsk Provinces. Muk.-elev. prom. 24 no.8: 9-10 Ag '58. (MIRA 11:10)

1. Saratovskoye oblastnoye upravleniye khleboproduktov (for Finkel'man). 2. Nachal'nik sushil'no-ochistitel'noy bashni Nizhne-Uvel'skogo khlebopriyemnogo punkta Chelyabinskoy oblasti (for Shishkin).

(Grain-handling machinery)

BERNSHTEIN, R.S.; LARIN, A.P.; FINKEL'MAN, S.G.

Main trends in the over-all mechanization and automation of the manufacture of refractory products. Ogneupory 25 no.10:455-459 '60.
(MIRA 13:10)

1. Vsesoyuznyy institut ogneporov.
(Refractories industry--Equipment and supplies)
(Automatic control)

FINKELSHTEYN, A.

Centralized hauling increases considerably the truck productive
rates. Avt.transp. 33 no.3:4-5 Mr '55. (MIRA 8:5)
(Transportation, Automotive)

FINKEL'SHTEYN, A.

~~FINKEL'SHTEYN, A.~~

Economic efficiency of centralized freight haulage. Avt. transp. 35
no.5:5-6 My '57. (MLRA 10:6)

(Transportation, Automotive)

FINKEL'SHTEYN, A.; LOBUTEV, B.

Centralized automotive transportation service for industrial enterprises. Avt.transp. 36 no. 7:27-29 J1 '58. (MIRA 11:8)

1. Glavmosavtotrans.
(Transportation, Automotive)

FINKEL'SHTEYN, A.

New trends in planning and accounting freight haulage. Avt. transp.
37 no.9:26-28 S '59. (MIRA 12:12)
(Transportation, Automotive---Freight)

KRAUZE, G.; FINKEL'SHTEYN, A.

Independence, initiative, responsibility. Avt.transp. 43
no.11:5-8 N '65. (MIRA 18:12)

1. Direktor avtokombinata No.1 Glavnogo upravleniya
avtomobil'nogo transporta Ispolnitel'nogo komiteta
Moskovskogo gorodskogo Soveta deputatov trudyashchikhsya
(for Krauze). 2. Zamestitel' direktora avtokombinata No.1
Glavnogo upravleniya avtomobil'nogo transporta Ispolnitel'nogo
komiteta Moskovskogo gorodskogo Soveta deputatov trudyashchikhsya
(for Finkel'shteyn).

L 1300-66 EWT(m)/EPF(c)/EWP(j)/T RM
 ACCESSION NR: AR5014391 UR/0058/65/000/004/D028/D028
 SOURCE: Ref. zh. Fizika, Abs. 4D209
 AUTHOR: Shufledovich, V. I.; Solov'yev, L. S.; Kuz'mina, Z. M.; Nekoshnova, M. S.;
 Sarapkin, P. S.; Korshunov, A. V.; Finkel'shteyn, A. F.
 TITLE: Some spectral characteristics of the side chains in furane compounds
 CITED SOURCE: Sb. Spektroskopiya. M., Nauka, 1964, 118-120
 TOPIC TAGS: spectrographic analysis, Raman spectrum, IR spectrum, furane resin,
 aldehyde, conjugate bond system, alkyl radical
 TRANSLATION: The authors studied the effect of the furane ring on the position of
 the stretching vibration bands of CH_3 , C=O and C=C groups in the Raman and IR spec-
 tra of 6 furane derivatives. The frequencies of the fundamental bands in the spec-
 tra of these compounds are given in the $4050-216 \text{ cm}^{-1}$ range. The position of sym-
 metric and skew-symmetric stretching vibration bands in CH_3 groups in the spectra
 of furfurylidene acetone, sylvan and 1-(α -furyl)-butanone-3 is practically the same
 as the ordinary position of the bands for this group. The position of stretching
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ACCESSION NR: AN5014991

vibration bands for C=O ($1640-1685\text{ cm}^{-1}$ in the spectra of the two latter compounds) indicates that conjugation of this bond with the furane ring results in the same effects as conjugation with one double bond. Yu. Kissin.

SUB CODE: OC, OF

ENCL: 80

mlr.
Card 2/2

An empirical formula for determining deformation coefficients of elasticity and its use in the computation of spectra. A. I. Finkel'shtein (State Univ., Moscow). *J. Phys. Chem. (U.S.S.R.)* 21, 1243-50 (1947) (in Russian).
 - If k_d is the deformation coeff. of elasticity of a bond, k_v is the valence coeff. of elasticity, r_1 and r_2 are the lengths of the bonds forming the angle being deformed, and F is a dimensionless const., then $Fk_d = (r_1 + r_2)^2 k_v$. The value of F is near 111 for linear mols. (e.g., CO, HCN, N₂O) and near 38 for nonlinear mols.; among the 67 mols. tested, only 10 gave deviations of F equal to 20% or more. The values of k_d calcd. for OC:C:CO agree with those found by Engler and Kohlrusch (C.A. 31, 1206) and disagree with those by Thomson and Healey (C.A. 31, 944). The k_d for Cl₂O found by Wu (*Vibrational Spectra, Polyatomic Molecules* (C.A. 41, 914h)) is confirmed. Deformation frequencies of OCN⁻ and SeCN⁻ are calcd.
 J. J. Bikerman

FINKEL'SHTEYN, A. I.

Tatevskiy, V. M. and Finkel'shteyn, A. I. "An approximate method of calculating determinants of a special type", Vestnik Porsk. un-ta, 1948, No. 10, p. 63-74.

SO: U-3042, 11 March 53, (Izvestiya 'nykh Statey, No. 10, 1949).

FINKEL'SHTEYN, A. I.

Cand Chem Sci

Dissertation: "Investigation of the Intensity of the Bands of Characteristic Vibrations in the Spectra of the Combination Scattering of Light." 27/11/50

Sci Res Physicochemical Inst imeni L. Ya. Karpov.

SO Vecheryaya Moskva
Sum 71

CA

10

Structural formula of diene-nitroso compound addition products. A. I. Finkel'shtein, Yu. A. Arbizov, and P. P. Shorogin (Karpov Phys.-Chem. Inst., Moscow). *Zhur. fiz. Khim.* 26, 802 (1950). The addn. of conjugated dienes to aromatic nitroso compds. produces derivs. of 3,6-dihydroorthoxazine (I), e.g., butadiene + PhNO \rightarrow 1-phenyl-3,6-dihydro-1,2(2H)-oxazine, PhN(O)CH₂CH=CH.CH₂CH₃. The combination dispersion spectra of C=C in 5- and 6-membered heterocycles were detd. The intensity of the 1600 cm.⁻¹ band vibration of the C₆H₄ ring may be used as an indicator of the valence state of the N atom connected to this ring. The detn. of the intensity of the characteristic C=C band indicated that in all cases studied there was a rough constancy in the intensity value. The dipole moment of I was 1.92 \pm 0.03 D. Paul W. Howard

Spectroscopic investigation of the anions of boric acids.
A. I. Finkelshtein and P. P. Shorvyn (L. V. Karpov Physico-Chem. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 73, 529-532 (1950). The following Raman spectra have been determined for the Na salts in aq. soln. $\text{B}(\text{O}^-)\text{H}$, 440(2), 465(2), 487(1), 619(4), 653(2), 853(4), 1210(1), 1401(2), 1454(6), 1625(1), 1145(2), 1160(1), 1261(1), 1323(10), 1394(10), 1401(1), 1545(1), 1610(8), 2563(4), 3070(1), $\text{P}(\text{O}^-)\text{H}$, 1350(10), 1380(2), 1520(7), 2968(2), 3044(1), 1270(1), 1335(10), 1380(2), 1520(7), 2968(2), 3044(1), $\text{P}(\text{NH}_3\text{C}_2\text{H}_5)_2\text{C}_2\text{H}_5$ (III), 622(10), 567(1), 672(1), 767(1), $\text{P}(\text{NH}_3\text{C}_2\text{H}_5)_3$ (III), 1080(2), 1156(13), 1156(13), 1185(2), 1285(2), 1339(2), 1386(10), 1521(13), 1440(10), 1610(10), 2979(5), 3179(1), $\text{P}(\text{C}_2\text{H}_5)_3$ (IV), 322(1), 368(1), 1104(2), 1127(5), 1380(8), 1445(10), 1511(1), 1530(2), 4881(1), 594(10), 634(3), 705(1), 767(1), 856(1), 1023(1), 1104(2), 12570(3), 3189(1). The 1380 cm^{-1} frequency of 1104(2), 2570(3), 3189(1). The 1380 cm^{-1} frequency of C_6H_5 and is entirely about twice that of the 313 line of C_6H_5 and is correspond to the group CO_2 conjugated with the ring, and must therefore be assigned to the sym. valence vibration of the CO_2 group. Hence, in the case of AcOH , it is the sym. valence vibration in contradiction with the assignment to the sym. valence vibration in contradiction with the assignment of Hilsen, and in agreement with Kohlrausch's argument of Hilsen. This follows from the lowering of the frequency of the NO_2 group in II as compared with that same frequency in PhNO_2 , and more conclusively from the more than 3-fold increase of the intensity of the 1345 cm^{-1} band from PhNO_2 to II. Hence, CO_2 should be in contrast to CO_2H , an ortho-para directing substituent; an indication to that effect is the chlorination of $\text{B}(\text{OH})_3$ in dil. aq. soln. in an alic. medium (Sant-Evra, *Ann. chim.* 1949). Section, 3, 25, 4561 (1948). *Lassen, Chem. Zentr.* 1950, II, 1223).

yielding mainly ortho-para products. Comparison of the frequencies of the sym. valence vibration of the CO_2 group in AcO^- , I, II, III, and IV, i.e. 1413, 1386, 1382, 1386, and 1380, with the disson, consists of the acyl, ketyl group in AcOH must be a shift of an electron to the as compared with AcOH must be a shift of an electron to the in the anions. The lowering of the frequency in III may be due either to strong intramol. interaction or to a decreased $\text{C}-\text{O}$ bond strength.

N. Thon

FINKELSTEIN, A.I.

Dependence of the intensity of combination scattering lines on the frequency of the incident light. A. I. Finkel'shteyn and V. P. Shorygin (L. Ya. Karpov Phys.-Chem. Inst., Moscow). *Zhur. Pis. Khim.* 26, 1272-7 (1952); cf. Vol'kenshteyn, *C.A.* 44, 37a.—The relative intensity of Raman lines can be calcd. by means of the equation $I'/I'' = k[(f_1'^2 + f_2'^2)(f_1'^2 - f_2'^2)]/[(f_1'^2 - f_2'^2)(f_1'^2 + f_2'^2)]$, where I'/I'' , k , f_1' , f_2' , and f are the ratio of intensities of any 2 Raman scattering lines, a const., effective frequencies corresponding to the given Raman lines, and frequency of the incident light, resp. By measurement of I'/I'' for 3 values of f and soln. of the resulting system of simultaneous equations f_1' and f_2' can be detd. Values of I'/I'' for given Raman lines excited by incident light of wave nos. 18,307, 22,938, 24,705, and 27,388 cm^{-1} are tabulated for cyclohexadiene plus 1-hexene; alloëcimene plus cyclohexadiene; styrene; crotonaldehyde; nitrobenzene plus nitropropane; *p*-nitrophenol plus nitropropane; *m*-chloronitrobenzene plus nitropropane; and benzonitrile plus acetonitrile. Values of f are tabulated for the following compds. and Raman wave nos.: 1-hexene (1642), 1,3-cyclohexadiene (1576), alloëcimene (1626), nitropropane (1380), nitrobenzene (1348), and *p*-nitrophenol (1343); they are 50,000, 45,000, 40,000, 50,000, 41,000, and 33,000 cm^{-1} , resp. These values are within 10% of those for lines in the corresponding absorption spectra.

J. W. Loweberg, Jr.

FINKEL'SHTRYN, A. I.

Use of sulfur-bismuth and sulfur-cadmium photoresistors in
photocolorimeters. Zav. lab. 21 no. 6:744-745 '55.
(Photoconductivity) (Colorimetry) (MIRA 8:9)

FINKEL'SHTEYN, A.I.

USSR/Chemistry - Physical chemistry

Card 1/1

Pub. 147 - 1/22

Authors : Finkel'shteyn, A. I., and Zagranichnyy, V. I.

Title : Absorption spectra of triazine derivatives in the ultraviolet zone

Periodical : Zhur. fiz. khim. 29/11, 1937-1941, Nov. 1955

Abstract : Absorption spectra were obtained for nonsymmetrical triazine derivatives - ammeline (2,4-diamine-6-hydroxytriazine) and ammelide (2-amino-4,6-dioxytriazine) and for melamine thermal decomposition products. The sharp contrast in the absorption spectra of melamine and in the products of its thermal decomposition proves that spectral analysis is well applicable for quantitative and qualitative determination of these substances. Admixtures of deamination products in the melamine were discovered. Seven references: 4 USA, 1 USSR, 1 Germ. and 1 Eng. (1920-1950). Graphs; illustration.

Institution :

Submitted : September 6, 1953

FINKEL'SHTEYN, A. I.

2236. Spectra and spectrophotometric analysis of chlorinated organic compounds. I. Determination of chlorox (di-(2-chloroethyl) ether) in mixtures with dichloroethane. Is. N. Boginskaya and A. I.

Finkel'shteyn. *Zhur. Anal. Khim.*, 1956, 11 (5), 602-605.—In the u.v. soln. of di-(2-chloroethyl) ether (I) in dichloroethane (II) show a max absorption at 267.5 mμ but II shows no absorption. This can be used to determine I, but the method is unsuitable for the analysis of samples containing resin and rubber. In the i.r., an absorption band at 8.50 μ can be used for determining I in the presence of II, resins and dissolved rubber. The method is sensitive to 0.3% and the error is ± 3.5% of the content. Raman spectra excited by Hg 4368 Å can also be used for determining I in similar mixtures.

G. S. SMITH

FINKEL'SHTEYN, A.I.

The absorption and Raman spectra of Michler's ketone
and of *p*-dimethylaminobenzaldehyde
March 1958

USSR/ Physical Chemistry - Molecule. Chemical bond...

B-4

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 10908

Author : Genkina Ye.v., Finkelshteyn A.I., Artem'yev A.A.

Inst : Academy of Sciences USSR

Title : Molecular Complexes of Nitrosyl Chloride

Orig Pub : Dokl. AN SSSR, 1956, 109, No 3, 528-531

Abstract : Investigated were the absorption spectra of solution of NOCl (I) in a number of organic solvents which the authors subdivide into 3 groups on the basis of their effects on the absorption spectrum of NOCl. 1. Dipole-free solvents (cyclohexane, cyclo-octane, n-heptane, CCl₄); in them the absorption curves of I in the visible region of the spectrum coincide with those of gaseous I. 2. Solvents comprising a readily polarizable benzene nucleus (C₆H₆, C₂H₅C₆H₅, CH₂Cl-C₆H₅). The absorption curves of I in these solvents are characterized by a shift of the maximum in the blue-green region into a shorter wave-length region and complete distortion of the curve in the 600-610 mμ region with formation, in lieu of the maximum, of only a slight inflexion followed by a rise. This can be explained by formation of molecular compounds due to interaction of unshared electrons of I with π-electrons of I.

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USSR/ Physical Chemistry - Molecule. Chemical bond

B-4

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 10908

trons of the benzene ring and the formation as a result thereof of an unstable complex, similar to the one previously described (Zh. obshch. khimii, 1948, 18, 190). 3. Polar solvents (C_2H_5Br , dichlorethane, n-butyl bromide, n-heptyl bromide). Absorption curves of I in the visible region, in the solvents of this group, are characterized by a shift of the maximum into the short wave portion of the spectrum which is apparently connected with distortion of the electron cloud of I molecules under the influence of dipole molecules of the solvent. In the ultraviolet region of the spectrum, the absorption maximum at λ 335 $m\mu$, of gaseous I, is observed only in solvents of the 1-st group while in the other instances there is observed an inflexion and sharp increase of absorption coefficient. Absence of fine structure in the 500-600 $m\mu$ region has been ascertained, which can be attributed to a change in the state of aggregation of I on its dissolution.

Card 2/2

Finkel'shteyn, A.I.

AUTHOR: Finkel'shteyn, A. I.

51-1-13/18

TITLE: On a Derivation of Badger's Formula. (O vyvode formuly Badzhera.)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.III, Nr.1, pp.82-84. (USSR)

ABSTRACT: Varshni and Mitra (Ref.1) attempted recently to interpret Badger's formula (Ref.2, 3)

$$k_e(r_e - d_{ij})^3 = C_{ij}$$

where k_e and r_e are the equilibrium elastic constant and interatomic distance respectively, d_{ij} and C_{ij} are constants determined by the structure of electron clouds of atoms i and j . The molecular model discussed is shown in Fig.1. The author shows that it is not necessary to exclude attractive forces from a derivation of the Badger formula (Eq.1). The author derives a potential energy function (Eq.7) which is given as curve 2 in Fig.2. Curve 1 in Fig.2 represents the usual harmonic function. Curve 2

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On a Derivation of Badger's Formula.

51-1-13/18

is closer in shape to the experimental potential curves than the usual harmonic function. On the other hand curve 2, representing Eq.7, suffers from the absence of the limit corresponding to the dissociation energy. The paper is entirely mathematical. There are 2 figures and 4 references, 1 of which is Slavic.

ASSOCIATION: Dzerzhinsk Branch of the State Research and Design Institute of Nitrogen Industry. (Dzerzhinskiy filial gosudarstvennogo nauchnoissledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti.)

SUBMITTED: December 24, 1956.

AVAILABLE:

Card 2/2

FINKEL'SHTYIN, A.I.; MALIKINA, N.I.; MACHIN, G.P.

Ultraviolet absorption spectra and molecular structure of triazine derivatives. Fiz. sbor. no.3:385-388 '57. (MIRA 11:8)

1. Dzerzhinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo i proyektного instituta azotnoy promyshlennosti, Gor'kovskiy politekhnicheskiy institut im. A.A. Zhdanova i Gor'kovskiy gosudarstvennyy institut im. N.I. Lobachevskogo.
(Triazine--Spectra)

Finkel'shteyn, A.I.

AUTHOR: Fisher, A.M., Finkel'shteyn, A.I. 32-7-5/49
TITLE: Determination of Calcium Contents in Sodium Salts by the Method of the Flaming Photometric Analysis (Opredeleniye kaliya v natriyevykh solyakh metodom plamenné-fotometricheskogo analiza)
PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 7, pp. 788-791 (USSR)
ABSTRACT: This method enables the construction of an apparatus which corresponds to the specific control methods under the conditions in laboratories. For the determination of the contents of sodium and calcium the luminous lines at the activation are used. Light absorbing filters keep these lines separated. The radiation slopes of these filters are shown in a figure. The relationship between the concentration of sodium and calcium is measured; it is equal to the light radiation. The results of the electrolytic analysis are given in corresponding tables. There are 2 figures and 3 tables.
AVAILABLE: Library of Congress

Card 1/1

FINKEL'SHTEYN, A.I., kand.tekhn.nauk

Raman spectra and molecular structure of some aromatic amino
carbonyl compounds. Trydy GIAP no.7:323-328 '57.

(MIRA 12:9)

(Ketones--Spectra)

FINKEL'SHTEYN, A. I.

PRIKHOT'KO, A. F.

24(7)

p. 3

PHASE I BOOK EXPLOITATION 30V/1365

L'vov. Universytet

Materialy I Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizichnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Uzer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsterg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskii, I.L., Doctor of Physical and Mathematical Sciences, Fabelinskii, V.A., Doctor of Physical and Mathematical Sciences, Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyonchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

Card 1/30

Realyakova, V.A., and A.I. Finkel'shteyn. Absorption Spectra of Light Filters Made of Organic Glass For the Visible Spectrum

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Finkel'shteyn, A.I., N.I. Malkina, and G.P. Machin. Absorption Spectra in the Ultraviolet Range and the Molecular Structure of Triazine Derivatives

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Card 24/30

AUTHOR:

Finkel'shteyn, A.I.

307/51-5-3-6/21

TITLE:

Optical Investigation of the Molecular Structure of s-Triazine Derivatives. (Opticheskoye issledovaniye molekulyarnogo stroyeniya proizvodnykh s-triazina). III. The Infrared Absorption Spectra of Certain Amino- and Oxy-Derivatives of s-Triazine. (III. Spektry pogloshcheniya v infrakrasnoy oblasti nekotorykh amino- i oksiproizvodnykh s-triazina).

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 3, pp 264-269 (USSR)

ABSTRACT:

For the preceding part see Ref 1. The present paper reports the infrared (2-15 μ) absorption spectra of melamine, hexadeuteromelamine, 2,4,6-trimethoxy-s-triazine, cyanuric acid, melamine cyanurate, ammeline (2,4-diamino-6-oxy-s-triazine) and ammelide (2-amino-4,6-dioxy-s-triazine) which are given in Figs 1-7 respectively. These spectra were obtained on solids pressed together with KBr. The method of preparation of pressed plates with KBr will be described elsewhere. The spectra were measured using a single beam IKS-11 spectrophotometer with an NaCl prism in the 4-15 μ region and an LiF prism in the 2-4 μ region. A Herzst-type rod of rare-earth oxides was used as the

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Optical Investigation of the Molecular Structure of s-Triazine Derivatives.
 III. The Infrared Absorption Spectra of Certain Amino- and Oxy-Derivatives of
 s-Triazine

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light source. Ammeline and ammelide were prepared by N.I. Malkina at the Cor'ky Polytechnical Institute. They were analysed by the method described in Ref 8. A sample of 2,4,6-trimethoxy-s-triazine was supplied by Yu.N. Sheynker. Comparison of the absorption spectra of melamine and hexadeuteromelamine showed that the 1660, 1430 and 1015 cm^{-1} bands are due to vibrations of the N-H group and the 1560 and 810 cm^{-1} are due to vibrations of the main body of the molecule itself. Comparison of the spectra of melamine, cyamuric acid and melamine cyanurate showed that formation of melamine cyanurate is accompanied by formation of new hydrogen bonds with no changes in the main structure of the molecule. In the spectra of ammeline and ammelide there are frequencies due to vibrations of both the carbonyl group and the triazine ring; this is due to de-localization of π -electrons. The spectra and the physico-chemical behaviour of ammeline, ammelide and melamine cyanurate are similar; this is due

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Optical Investigation of the Molecular Structure of s-Triazine Derivatives.
III. The Infrared Absorption Spectra of Certain Amino- and Oxy-Derivatives of
s-Triazine

to formation of associates. The study of the valence vibrations of amino-groups in melamine, ammeline and ammelide suggests that there are two types of hydrogen bonds, a weaker and a stronger one, in these molecules. The author thanks A.K. Yermolayeva and L.S. Pugina for their help. There are 7 figures and 16 references, 7 of which are Soviet.

ASSOCIATION: Dzerzhinskiy filial Nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti (Dzerzhinsk Branch of the Research and Design Institute of Nitrogen Industry)

SUBMITTED: November 16, 1957

Card 3/3

1. Triazines--Spectra
2. Infrared spectroscopy--Applications
3. Infrared spectrophotometers--Applications

SOV/137-59-1-2138

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 280 (USSR)

AUTHORS: Fisher, A. M., Finkel'shteyn, A. I.

TITLE: Apparatus for Flame-photometric Determination of Potassium Under Shop Conditions (Pribor dlya plammeno-fotometricheskogo opredele-niya kaliya v proizvodstvennykh usloviyakh)

PERIODICAL: Tr. Komis. po analit. khimii AN SSSR, 1958, Vol 8(11), pp 272-278

ABSTRACT: The authors designed a flame photometer for industrial laboratories. In this apparatus a two-arm photoelectric circuit is used with an electric null setting and electric compensation. Type FESS-U10 photoelectric cells serve as light detectors. The pneumatic arrangement of the apparatus is distinguished by the presence of an air jacket which affords easy regulation of the pressure of the air supplied both to the atomizer and directly into the burner. Air pressure in the burner is controlled by a water manometer; the burner is made of quartz. Examples are adduced of the employment of the apparatus for determination of K in soda and F electrolytes (with Na as the internal standard). A violet light filter (769.89 and 766.49 m μ) is

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Apparatus for Flame-photometric Determination of Potassium Under Shop (cont.)

SOV/137-59-1-2138

used for resolving the K lines. To establish the optimum proportion of luminous fluxes from Na and K radiation, an additional amount of Na salt is introduced into the solution of the specimen investigated, or a neutral light filter which weakens the luminous emission of Na is used for the same purpose.

Yu. B.

Card 2/2

AUTHORS: Roginskaya, Ts. N., Svetozar'skiy, S. V., SOV/79-28-8-47/66
Finkel'shteyn, A. I., Zil'berman, Ye. N.

TITLE: Concerning the Question of the Molecular Structure of the Unsaturated Ketones Which Are the Bimolecular Condensation Product of Cyclohexanone (K voprosu o molekulyarnom stroenii nenasyshchennykh ketonov-bimolekulyarnykh produktov kondensatsii tsiklogeksanona)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp. 2229 - 2233 (USSR)

ABSTRACT: On the basis of investigations on the chemical properties of the ketone $C_{12}H_{18}O(I)$ the structure (A) (Refs 6,9-11) or structure (B) (Refs 9,10,12-12) may be assigned to it, or it may be considered as a mixture of the two isomers (Refs 15,16). Those supporting structure (B) (Refs 10,14) base their arguments on the chemical reactions of the ketone and cite the rule of Dikman-Kon(Dikman,Kon), according to which the semicyclic double bond in the cyclohexane ring is less stable than the endocyclic double bond. The question of the structure of this ketone was more

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Concerning the Question of the Molecular Structure of SOV/79-28-8-47/66
the Unsaturated Ketones Which Are the Bimolecular Condensation Product
of Cyclohexanone

disputed by the discovery of a new unsaturated ketone $C_{12}H_{18}O$ (II), by Reese (Rize)(Ref 12) in 1942. According to his reactions there could be not doubt that α, β double bonds were present. In contrast to (I) this compound is a solid, relatively less stable, and on warming changes to the liquid ketone (I). The spectra of these two ketones, (I) and (II), had not previously been investigated. The authors investigated the optical properties of (I) and (II) in order to establish their molecular structures. The combined spectra obtained are given in the table, while the infra-red absorption spectra appear in figures 1 and 2 and the ultra-violet spectra appear in figures 3 and 4. It was shown that both compounds are different forms of the α, β -unsaturated ketone 2-cyclohexylide cyclohexane. Figures 1-4 illustrate the spectral analytical results; figure 5 shows the structure of the two stereoisomers of 2-cyclohexylide cyclohexane. There are 5 figures, 1 table, and 20 references, 2 of which are Soviet.

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Concerning the Question of the Molecular Structure of SOV/79-28-8-47/66
the Unsaturated Ketones Which Are the Bimolecular Condensation Product
of Cyclohexanone

SUBMITTED: May 22, 1957

Card 3/3

AUTHOR: Finkel'shteyn, A. I. SOV/76-32-8-14/37

TITLE: The Determination of the Chemical Bond Order According to Interatomic Distances (Opredeleniye poryadka khimicheskoy svyazi po mezhatomnym rasstoyaniyam). I. The C - C Bond (I. Svyazi C - C)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 8, pp. 1817-1822 (USSR)

ABSTRACT: Hydrocarbons were investigated with the subscripts according to V.M. Tatevskiy (Ref 2) being used for designating the diverse bond types C-C and C-H. Pauling (Poling) et al. (Refs 3,4) obtained a curve for ethane, graphite, benzene and ethylene. Tatevskiy pointed out that the C-C bond in ethane is formed by atoms being in another hybrid state. In the calculations given the magnitude of r_{22} is calculated by means of a formula, which may be used together with that by Badger (Bedzher) (Refs 10,11). Varshni (Ref 14) obtained a similar equation assuming that the electrons form a Fermi gas. In considering the interaction of the triple bond with the neighbouring single bond the assumption by M.I. Batuyev (Ref 26) is

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The Determination of the Chemical Bond Order
According to Interatomic Distances. I. The C - C Bond

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mentioned. According to the calculations and the considerations made the author draws the following conclusions:
1. The shortening of the bond length =C=C= and =C=O in the butatriene molecules C_2O_3 and CO_2 as compared to those of >C=O and >C=C< in aldehydes, ketones and olefines may be explained by a change of the valence of the carbon atom.
2. The covalent carbon radii depend on the state of valence.
3. The degree of the double bond of the binding =C-C= amounts to 37% or 60-70%, respectively, whereas that of the bindings >C-C< and $\text{>C-C}\equiv$ are about equal. Finally the author thanks V.M. Tatevskiy.
There are 3 figures, 3 tables, and 28 references, 13 of which are Soviet.

ASSOCIATION: Dzerzhinskiy filial gosudarstvennogo Instituta azotnoy promyshlennosti (Dzerzhinsk Branch of the State Institute of Nitrogen Industry)
Card 2/2

SUBMITTED: April 15, 1956

AUTHORS: Malkina, N. I. , Finkel'shteyn, A. I. 76-32-5-2/47

TITLE: Optical Investigation of the Molecular Structure of the Derivatives of Sym-Triazine (Opticheskoye issledovaniye molekulyarnogo stroyeniya proizvodnykh sim-triazina) II. The Absorption Spectra in the Ultraviolet Range, the Molecular Structure and the Analysis of Ammeline and Ammelide (II. Spektry pogloshcheniya v ul'trafioletovoy oblasti, molekulyarnoye stroyeniye i analiz ammelina i ammelida)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 5, pp. 981-985 (USSR)

ABSTRACT: In the present work investigations of the tautomeric transformations of the above mentioned compounds in acid and alkaline medium using the mentioned spectra for the analysis of mixtures of these compounds are carried out. Data are given with respect to the production of the two substances, as well as a graphical representation of the obtained absorption spectra obtained by means of a quartz-photoelectric spectrophotometer of the type CD-4. It was observed that a noticeable displacement of the absorption maximum as function of the acidity takes place, with both substances displaying opposite

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Optical Investigation of the Molecular Structure of the 76-32-5-2/47
Derivatives of Sym-Triazine.II. The Absorption Spectra in the Ultraviolet
Range, the Molecular Structure and the Analysis of Ammeline and Ammelide

phenomena, so that a separation analysis can be carried out on this basis. The change of the absorption spectra by the acidity is explained by the tautomeric conversions, taking place due to an increase or reduction of the number of interbindings. A quantitative determination of these substances was described by A. A. Korinfskiy (Ref 11), as well as by S. N. Kazarnovskiy and N. I. Makina (Ref 10). The course of analysis is described from which follows that calibration curves are plotted with the help of the pure substances and that the calculation of the concentration is carried out according to the method of consecutive approximations, with determinations of the optical density being made. The duration of analysis is given to be from 20 - 25 minutes, with tabular comparisons of the results with determinations according to other methods being mentioned. There are 3 figures, 2 tables, and 12 references, 3 of which are Soviet.

ASSOCIATION: Gor'kovskiy politekhnicheskii institut im. A. A. Zhdanova,
Dzerzhinskiy filial Instituta azotnoy promyshlennosti (Gor'kiy

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- . Optical Investigation of the Molecular Structure of the 76-32-5-2/47
Derivatives of Sym-Triazine. II. The Absorption Spectra in the Ultraviolet
Range, the Molecular Structure and the Analysis of Ammeline and Ammelide

Polytechnical Institute imeni A. A. Zhdanov, Dzerzhinskiy
Department of the Institute of Nitrogen Industry)

SUBMITTED: November 19, 1956

1. Triazines--Molecular structure 2. Triazines--
Spectrographic analysis 3. Spectrophotometer--
Applications

Card 3/3

SOV/51-6-1-8/30

AUTHOR: Finkel'shteyn, A.I.

TITLE: Optical Investigation of the Structure of S-Triazine Derivatives.
(Opticheskoye issledovaniye molekul'yarnogo stroyeniya
proizvodnykh s-triazina). IV. The Infrared Absorption Spectra of
Compounds with Condensed Nuclei of S-Triazine, Which are Derivatives
of Cyamelluric Acid. (IV. Spektry pogloscheniya v infrakrasnoy
oblasti soyedineniy s kondensirovannymi yadrami s-triazina proizvodnykh
tsiamellurovoy kisloty)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 6, Nr 1, pp 33-37 (USSR)

ABSTRACT: Part III was published in Optika i Spektroskopiya, Vol 5, p 264, 1958
(Ref 1). In 1937 Pauling and Sturdivant (Ref 4) suggested that
cyamelluric acid derivatives contain three condensed s-triazine nuclei.
Pauling and Sturdivant's structural formulae, shown in Fig 1, were
confirmed by chemical investigations (Refs 6, 7) and by measurements
of magnetic susceptibility (Ref 8). To check these structural formulae
the present author investigated infrared absorption spectra
(in the 2-15 μ region) of cyamelluric acid and five of its derivatives:
potassium cyamellurate, potassium hydromelionate, hydromelonic acid,
melan and dextromelan. Absorption spectra were obtained on samples.

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SOV/51-6-1-6/30

Optical Investigation of the Structure of S-Triazine Derivatives. IV. The Infrared Absorption Spectra of Compounds with Condensed Nuclei of S-Triazine, Which are Derivatives of Cyamelluric Acid

in the form of pressed transparent plates 0.1-0.2 mm thick, which were made of KBr with between 0.33 and 1% of the substance studied. The spectra were measured by means of a single-beam infrared spectrophotometer IKS-11 with a rock salt prism. The spectra are given in Figs 2-4. Fig 2 gives the spectra of potassium hydromelionate (curve A) and hydromelionic acid (curve B). Fig 3 gives the spectra of potassium cyamellurate (curve A) and cyamelluric acid (curve B). Fig 4 gives the spectra of deuteromelen (curve A) and melen (curve B). The results obtained confirm Pauling and Sturdivant's structural formulae by the presence of three bands (two in the 6-7 μ region and one near 12.5 μ) of the cyamelluric nucleus. There are 4 figures and 8 references, 2 of which are Soviet, 3 English, 2 German and 1 Japanese.

SUBMITTED: March 27, 1953

Card 2/2

SOV/51-6-3-22/28

AUTHORS: Finkel'shteyn, A.I., Malachevskaya, F.L., Fisher, A.M.
and Rabovskiy, B.G.

TITLE: A Simple Method of Preparation of Potassium Bromide Plates
for Infrared Spectroscopy of Solids (Prostoy sposob
prigotovleniya plastinok iz bromistogo kaliya dlya
infrakrasnoy spektroskopii tverdykh tel)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 3, pp 415-417,
(USSR)

ABSTRACT: The paper describes preparation of rectangular KBr or
NaCl plates containing the substance to be investigated
by infrared spectroscopy. The plates are prepared from
dried (12-18 hours at 200°C) powders. A small amount
(0.1-3%) of the investigated substance, also in powder
form, was added to KBr or NaCl and ground in a porcelain
mortar. The amount of the substance studied which is used
depends on the spectral region to be investigated and the
sensitivity and accuracy required. The plate is prepared
using simple apparatus (figure). It consists of two
Card 1/2 stainless-steel plungers (1 and 2) and a stainless-steel

SOV/51-6-3-22/28

A Simple Method of Preparation of Potassium Bromide Plates for Infrared Spectroscopy of Solids

ring (3). A plastic form (4) is placed on the lower plunger and filled with powder, which is then lightly compressed by means of a plastic piece 5. The form 4 and piece 5 are removed and the resultant thin rectangular plate is further compressed using the ring 3 and the upper plunger 2. It is necessary to apply 10-15 tons for several seconds or 5-7 tons for up to 30 minutes. The area of the plates produced is about 1 cm² (20 x 5 mm). There is 1 figure and 3 references, of which 1 is German and 2 English.

SUBMITTED: June 24, 1958

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5(3), 24(7)

AUTHORS: Sukhorukov, B.I. and Finkel'shteyn, A.I.

SOV/51-6-5-13 34

TITLE: Optical Studies of the Molecular Structure of Cyanamide and its Derivatives. (Opticheskoye issledovaniye molekulyarnogo stroyeniya tsianamida i ego proizvodnykh) I. The Molecular Structure of Dicyandiamide (I. Molekulyarnoye stroyeniye ditsiandiamida)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 637-641 (USSR)

ABSTRACT: The paper reports studies of the infrared absorption spectra of dicyandiamide and deuterodicyandiamide crystals and their silver salts and the Raman spectra of dicyandiamide solutions which were undertaken in order to decide the molecular structure of these compounds. Deuterodicyandiamide was obtained by an exchange reaction with heavy water. The silver salts of dicyandiamide and deuterodicyandiamide were obtained by reaction with silver nitrate in ordinary and heavy water solutions. The infrared absorption spectra were recorded using samples in the form of KBr plates containing small amounts of dicyandiamide and deuterodicyandiamide. The silver salts of dicyandiamide and deuterodicyandiamide were used in the form of a paste suspended in vaseline or fluorinated oil. The Raman spectra were recorded by means of a spectrograph ISP-51 and a light filter which separated out 4358 or 4047 Å. Liquid ammonia was used as the solvent. The absorption

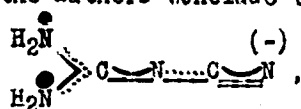
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Optical Studies of the Molecular Structure of Cyanamide and its Derivatives.

I. The Molecular Structure of Dicyandiamide

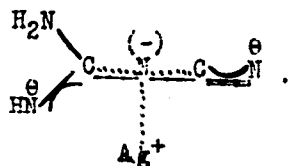
spectra of dicyandiamide and deuterodicyandiamide in the region 4000-700 cm^{-1} are shown in Fig 1. The Raman spectrum of dicyandiamide in ammonia is given in a table on p 639. Cols 1, 2 and 3 of this table list the Raman spectra (in cm^{-1}) of crystalline dicyandiamide (taken from Ref 8), its aqueous solution (taken from Ref 7) and its solutions in liquid ammonia (the authors' results). Fig 2 shows the absorption spectra of crystals of the silver salts of deuterodicyandiamide (curve I) and dicyandiamide (curve II) in the region 4000-800 cm^{-1} . From all these spectra the authors conclude that dicyandiamide has the structure



first suggested by Pohl (Ref 4) in 1908. The structure of the silver salt of dicyandiamide is given by

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Optical Studies of the Molecular Structure of Cyanamide and its Derivatives. SOV/51-6-5-13/34
I. The Molecular Structure of Dicyandiamide



The symbolism used in these structural formulae is that of Finkel'shteyn (Ref 14). There are 2 figures, 1 table and 15 references, 7 of which are Soviet, 4 German, 1 Swiss, 1 English and 2 translations from English into Russian.

SUBMITTED: June 24, 1958

Card 3/3

507/51-7-4-8/32

AUTHORS: Boytsov, Ye.N. and Finkel'shteyn, A.I.

TITLE: An Optical Investigation of the Molecular Structure of S-Triazine Derivatives. V. Infrared Absorption Spectra of Salts of Oxy- and Amino-Derivatives of S-Triazine.

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 482-486 (USSR)

ABSTRACT: The following compounds were prepared: trisodium salt of cyamuric acid, disodium salt of ammeline, monosodium salt of ammeline and monochlorhydrates of melamine, ammeline and ammeline. The method of preparation was the same as that described by Belstein (Ref 6). The infrared absorption spectra of these compounds were obtained on samples pressed together with KBr using an IKS-12 spectrograph (NaCl prism, the wavelength range 3-15 μ). The spectra of all these salts are shown in Figs 1-3, where transmission T is plotted in % against wavelength in μ . The frequencies near 1700 cm^{-1} indicate the presence of the C=O group in acid salts of ammeline and ammeline. In the region of deformational vibrations of N-H in acid salts an increased number of bands is observed which indicate the presence of various types of N-H bonds. In the region of valence vibrations of N-H in acid salts two intense bands appear which are strongly displaced towards the longer wavelengths. In the case of ammeline there are two strongly displaced absorption bands

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SOV/51-7-4-8/32

An Optical Investigation of the Molecular Structure of S-Triazine Derivatives. V.
Infrared Absorption Spectra of Salts of Oxy- and Amino-Derivatives of S-Triazine.

which indicate formation of an NH_2^+ group or an NH_3^+ group. The authors suggest that formation of acid salts of ammelide occurs by attachment of a proton to the ring atom of nitrogen. In the case of ammeline and melamine, which have more than one amino-group, two bands appear in addition to the bands of the NH_2 group. The frequencies of these additional bands are close to the frequencies of NH in ammelide salts. It follows that formation of mono-salts of ammeline and melamine involves only one of the amino-groups and proceeds in the same way as in the case of ammelide. There are 3 figures, 6 structural formulae, 1 table and 13 references, 6 of which are Soviet, 2 English, 2 German, 1 Belgian, 1 Japanese and 1 translation.

SUBMITTED: February 26, 1959

Card 2/2

5(3)

AUTHORS:

Roginskaya, Ts. N., Finkel'shteyn, A. I.

SOV/75-14-3-20/29

TITLE:

A Simplified Spectrophotometric Method for Determining Organic Compounds by Absorption in Near Infrared Region (Uproshchennyy spektrofotometricheskiy metod opredeleniya organicheskikh soedineniy po pogloshcheniyu v blizhney infrakrasnoy oblasti)

PERIODICAL:

Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 3, pp 360-361 (USSR)

ABSTRACT:

The method described is useful for determining mixtures of Chlorex (bis- β -chloroethyl ether) and dichloro-ethane, cyclohexanol, and cyclohexanone as well as of water in isopropyl alcohol. The error limits are (for Chlorex) at a maximum of 7%, which is admissible for industrial analyses. Figure 1 shows a scheme of the spectrophotometer. Silver sulfide photoelements FESS-U10 were used as receivers. As light filter the complex salt of copper sulfate with mono-ethanol amine was used. The determination was carried out on the basis of calibration curves (Fig 3). There are 3 figures, 2 tables, and 5 references, 3 of which are Soviet.

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24(7), 5(4)

SOV/48-23-10-23/39

AUTHORS:

Sukhorukov, B. I., Finkel'shteyn, A. I.

TITLE:

Spectrophotometric Analysis According to the Method of the
"Heterochromatic Zero"

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,
Vol 23, Nr 10, pp 1230-1232 (USSR)

ABSTRACT:

In a previous paper (Ref 1) the simple method of pressing plates from the investigated substance + alkali-halogen layers has already been discussed. The usefulness of this method for the determination of the infrared absorption spectra of the samples has already been proved (Refs 2,3). The present paper discusses the theoretical fundamentals of a quantitative spectrophotometric analysis according to the method of the "heterochromatic zero". As an example, the application of this method for the analysis of a mixture of 1-cyano guanidine $(H_2N)_2-C=N-C=N$ and melamine in the solid phase is discussed. In the spectrum of the sample three points are selected which have the wavelengths λ_1 , λ_{st} , and λ_0 : The first corresponds to the so-called analytical point, the second to the maximum absorption

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SOV/48-23-10-23/39

Spectrophotometric Analysis According to the Method of the "Heterochromatic Zero"

of the inner standard, and λ_0 to a point at which the absorption of the component under investigation is small.

$$R_i = D_i/D_{st} = \lg \frac{I_i^0}{I_i} / \lg \frac{I_{st}^0}{I_{st}} \text{ then holds; the } D \text{ denote the optical}$$

densities of standard and of the i-th component, I^0 - the intensities of the incident light, and I the intensities of the light passing through at λ_i and λ_{st} respectively. Determination of I^0 according to the zero-method is carried out by means of the equation $I_{st}^0 = aI_0$ and $I_i^0 = bI_0$, where I_0 denotes the intensity of the light passing through point λ_0 ; a and b are constants which depend upon the energy distribution in the spectrum of the light source. After several transformations

$$R_i = \frac{1}{D_{st}} \sum_j D_j = \sum_j K_{ij} C_j \text{ is obtained, where } C_j \text{ denotes the con-}$$

centration of the j-th component and $K_i = \varepsilon_i / \varepsilon_{st} C_{st}$, ε is a constant. Finally new constants (A and B) are introduced by the ratios of the logarithms of intensity ratios, and by means of them the correction function is set up. Finally the analysis

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SOV/48-23-10-23/39

Spectrophotometric Analysis According to the Method of the "Heterochromatic Zero"

of dicyan amide in melamine is discussed. Such an analysis takes 1.5 and 2 hours. The heterochromatic zero method is suited not only for the analysis of solid substances pressed into the form of plates, but also for the analysis of liquids (in thin layers). There are 1 figure and 4 Soviet references.

ASSOCIATION: Dzerzhinskiy filial Nauchno-issledovatel'skogo i proyektного instituta azotnoy promyshlennosti (Dzerzhinsk Branch of the Scientific Research- and Planning Institute of the Nitrogen Industry)

Card 3/3

5 (3)

AUTHORS:

~~Finkel'shteyn~~, A. I., Roginskaya, Ts. N., SOV/32-25-8-12/44
Balabanova, P. N., Malachevskaya, F. L.,
Fisher, A. M., Machin, G. P.

TITLE:

Spectrophotometric Analysis Methods of Organic Compounds in
Chemical Industry

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 8, pp 932 - 934
(USSR)

ABSTRACT:

The article contains descriptions of spectrophotometric analysis methods (SA) for the analysis of hexachlorane with simultaneous determination of the three α -, β -, and δ -isomers as well as for the determination of chlorobenzene in sewage water, the analysis of ammeline and ammelide mixtures, the determination of cyclohexanol and cyclohexanone in cyclohexane, etc. As the spectra of the investigated substances do not differ very much from that of the basic substance a modified measuring scheme (Figure) of the photocolormeter was applied to make measuring at low optical densities easier. A copper-monoethanol amine-complex compound (Ref 1) serves as light filter; its maximum perviousness is at 1.25 μ . The used photoelement was FESS-U10, the spectrometers IKS-12 and SF-4. For the determination of chlorobenzene

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Spectrophotometric Analysis Methods of Organic Compounds SOV/32-25-8-12/44
in Chemical Industry

in the waste water of the perchloro vinyl resin production the "method of heterochromatic extrapolation" (Ref 3) was applied. As examples of determination of two components they describe the determination of diethyl chloride and ethyl chloride in carbon tetrachloride (Table 1), the determination of cyclohexanol and cyclohexanone in cyclohexane and 2,4- and 2,6-toluylene diamine (Table 2). For the determination of ammeline and ammelide (Ref 5) according to a wave length (1250 mμ) the acidity of the medium is changed instead of the wave-length. The determination of 3 components is shown in the determination of hexachlorane isomers (Table 3) and the determination of 4, 5, and 6 components at the analysis of 1,1- and 1,2-diethyl chlorides, 1,1,2-trichloroethane and 1,1-, 1,2-, and 1, 1,2, 2-tetrachloroethane in carbon tetrachloride, and they also investigated a mixture of p-, m-, and o-xylol and ethyl benzene (Table 4). There are 1 figure, 4 tables, and 5 Soviet references.

Card 2/2

SUKHORUKOV, B.I.; FINKEL'SHTAYN, A.I.

Optical investigation of the molecular structure of cyanamide
and its derivatives. Part 3. Opt. i spektr. 9 no.1:46-50
Jl '60. (MIRA 13:7)

(Cyanamide)

BOYTSOV, Ye.N.; FINKEL'SHTEYN, A.I.

Optical investigation of the molecular structure of S-triazine
derivatives. Part 6. Opt.i spektr. 9 no.1:51-56
J1 '60. (MIRA 13:7)
(Triazine)

86237

S/032/60/026/008/025/046/XX
B020/B052

5.5310 1273, 1282, 1153

AUTHORS: Finkel'shteyn, A. I., and Boytsov, Ye. N.

TITLE: Spectrophotometric Analysis of the Isomeric Compositions of
Toluylene Diamine and Toluylene Diisocyanate Mixtures

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 8, pp. 959-963

TEXT: The authors suggest a spectrophotometric method of analyzing mix-
tures of 2,4-, 2,6-toluylene diamines, and 2,4-, 2,6-toluylene diiso-
cyanates on the basis of their infrared absorption spectra, since for this
purpose neither the determination of melting and boiling points nor the
spectrophotometric method described in publications (Ref. 1) are suitable.
For increasing the analysis accuracy in measuring the optical density of
the analyzed solution, the wire-gauze method was applied by which the
ratio between the optical density of a wire-gauze and the solvent, and the
ratio between the optical density of the solution and the gauze were
measured instead of the optical density of the compound. Since neither the
solvent nor the wire gauze show selective absorption, the optical density

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Spectrophotometric Analysis of the Isomeric
Compositions of Toluylene Diamine and
Toluylene Diisocyanate Mixtures

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of the analyzed solution does not depend on the width of the slit. The spectrographs of the 2,4- and 2,6-toluylene diisocyanate mixtures and the values measured, are shown in Fig. 1. Figs. 2 and 3 give the absorption spectra of the isomers of 2,4-, 2,6-toluylene diamines, and 2,4-, 2,6-toluylene diisocyanates. The absorption bands 12.35μ and 12.80μ were chosen as characteristic lines. For the determination of 2,4-toluylene diamine, the absorption bands of 11.86 and 12.57μ were chosen, and for 2,6-toluylene diamine those of 12.87μ . Using three wavelengths two pairs of equations were obtained whose solutions gave two values for the concentration of each component. Their arithmetic mean was calculated. The authors investigated the solvents which are transparent in the range between 11 and 13μ , namely: carbon disulfide, cyclohexane, and nitromethane. The spectrographs of the solutions investigated were taken by the spectrophotometer of type WKC-12 (IKS-12) which was equipped with an NaCl prism and a special device for the fixation of the wire gauze and the bulb in front of the slit. The method is described for determining the absorption coefficients of 2,4-, 2,6-toluylene diisocyanates by means of

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Spectrophotometric Analysis of the Isomeric
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Toluylene Diisocyanate Mixtures

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wavelengths of 12.35 and 12.80 μ , and the isomer analysis of their mix-
tures. Also 2,4-, 2,6-toluylene diamines were analyzed. Fig. 4 shows the
dependence of the optical densities on the isomer concentrations from which
the absorption coefficients of 2,4-toluylene diisocyanate and
2,6-toluylene diisocyanate were determined. Tables 1 and 2 give the
analysis results for a number of mixtures of 2,4-, 2,6-toluylene diiso-
cyanates, and 2,4-, 2,6-toluylene diamines. The mean absolute error of
the analysis did not exceed 2%; the analysis lasted approximately one
hour. L. G. Zelenskaya, A. V. Iogansen, and G. A. Kurkchi are mentioned.
There are 4 figures, 2 tables, and 2 non-Soviet references.

ASSOCIATION: Dzerzhinskiy filial gosudarstvennogo nauchno-issledovatel'-
skogo i proyektnogo instituta azotnoy promyshlennosti i
produktov organicheskogo sinteza (Dzerzhinsk Branch of the State
Planning and Design Scientific Research Institute of the
Nitrogen Industry and Organic Synthesis Products)

Card 3/3

S/058/62/000/012/015/048
A160/A101

AUTHOR: Finkel'shteyn, A. I.

TITLE: The determination of the order of the C - N and C - O bonds by interatomic distance

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1962, 16, abstract 12V102 ("Tr. po khimii i khim. tekhnol." (Dor'kiy), no. 4, 1961, 714 - 723)

TEXT: An investigation is carried out of the dependence of interatomic distance on the order of the C - O and C - N bonds. A correlation curve of the C - O and C - N bonds is plotted. It is shown that the total of the bond orders for the C atoms equals 4, in case the given atom is not partially charged and is not in a partially radical state. ✓

[Abstracter's note: Complete translation]

Card 1/1

FINKEL'SHTEYN, A.I.

Spectrum absorption methods of analysis in the chemical industry;
survey. Zav.lab. 27 no.8:923-950 '61. (MIRA 14:7)
(Spectrochemistry) (Chemicals industry)

FINKEL'SHTEYN, A.I.

Molecular structure of the products obtained from the low-
temperature deamination of melamine. Zhur. ob. khim. 31
no.4:1132-1135 Ap '61. (MIRA 14:4)
(Melamine)

SVETOZARSKIY, S.V.; ZIL'BERMAN, Ye.N.; FINKEL'SHTEYN, A.I.

Reactions between benzaldehyde and ammonia. Zhur.ob.khim, 31
no.5:1717-1719 My '61. (MIRA 14:5)
(Benzaldehyde) (Ammonia)

SUKHORUKOV, B.I.; FINKEL'SHTEYN, A.I.; ZIL'BERMAN, Ye.N.;
KULIKOV, A.Ye.; GANINA, V.I. (Dzerzhinsk)

Spectroscopic study of the molecular structure of amide
hydrochlorides. Zhur. fiz. khim. 35 no.7:1600-1605 J1 '61.
(MIRA 14:7)

(Amides—Spectra)

FINKEL'SHTEYN, A.I.

Determination of chemical bond order from interatomic distances.
Part 2: C-N and C-O bonds. Zhur.fiz.khim. 35 no.12:2751-2753
D '61. (MIRA 14:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut azotnoy promyshlennosti i produktov organicheskogo
sinteza.

(Chemical bonds)

FINKEL'SHTEYN, A.I.

Optical study of the molecular structure of s-triazine derivatives. Part 7. Electron spectrum of aqueous solutions of the derivatives of cyamelluric acid at different pH. Opt. i spektr. 12 no.2:204-207 F '62. (MIRA 15:2)
(Cyamelluric acid--Spectra)

FINKEL'SHTEYN, A.I.

Relation between the symmetric and antisymmetric frequencies of
groups of the type XH_2 . Opt. i spektr. 12 no.6:801-802 Je
62. (MIRA 15:5)

(Hydrogen bonding)

BOYTSOV, Ye.N.; FINKEL'SHTEYN, A.I.; PETUKHOV, V.A.

Dependence of vacuum ultraviolet spectra of s-triazine
derivatives on their molecular structure. Opt.i spektr. 13
no.2:274-276 Ag '62. (MIRA 15:11)
(Triazine--Spectra)

MUSHKIN, Yu.I.; FINKEL'SHTEYN, A.I.

Vibration spectra of cyanamide. Opt.i spektr. 13 no.2:289-291
Ag '62. (MIRA 15:11)

(Cyanamide--Spectra)

BOYTSOV, Ye.N., ~~FINKEL'SHTEYN, A.I.~~

Production of mono- and diamides of cyameluric acid. Zhur. ob. khim.
32 no.1:321-322 Ja '62. (MIRA 15:2)
(Cyameluric acid)

BOYTSOV, Ye.N.; FINKEL'SHTEYN, A.I.

Structure of molecules and ions of aminoxy derivatives
of symm.-heptazine (cyameluric acid amides). Zhur.ob.khim.
32 no.10:3403-3406 0 '62. (MIRA 15:11)
(Cyameluric acid)

KHOROSHEVA, V.V.; FINKEL'SHTEYN, A.I.

Spectroscopic investigation of melon. Zhur.fiz.khim. 36
no.5:1055-1057 My '62. (MIRA 15:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
azotnoy promyshlennosti organicheskogo sinteza i produktov.
(Melon--Spectra)

FINKEL'SHTEYN, A.I.; BOYTSOV, Ye.N.

Molecular structure of s-triazine and its derivatives. Usp.
khim. 31 no.12:1496-1510 D '62. (MIRA 16:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy
institut azotnoy promyshlennosti i produktov organicheskogo
sinteza, Dzerzhinskiy filial.
(Triazine) (Chemical structure)

GANINA, V.I.; FINKEL'SHTEYN, A.I.

Infrared spectra of hydrochloric amidine halides. Opt.
i spektr. 13 no.4:576-578 0 '62. (MIRA 16:3)
(Amidines—Spectra)

FINKELSHTEYN, H.I.

PHASE I BOOK EXPLOITATION

110
SOV/6181

Ural'skoye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTU.

Eds. (Title page): G. P. Skorniyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skorniyakov; Ed. of Publishing House: M. L. Kryzhova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

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Materials of the Third Ural Conference (Cont.)

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807/6181

COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to G. V. Chentsova for help in preparing the materials for the press. References follow the individual articles.

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Foreword

PART I

Sherstkov, Yu. A., and L. F. Maksimovskiy. Investigation of the dependence of the total intensity of spectral lines on the concentration of elements in an arc-discharge plasma 4

Card 2/15

Materials of the Third Ural Conference (Cont.)

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Finkel'shteyn, A. I., B. I. Sukhorukov, T. M. Korniyenko, and Yu. I. Mushkin. Utilization of acid and alkali properties for spectrophotometric analysis of amino-hydroxy compounds by means of ultraviolet spectra

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Finkel'shteyn, A. I. Spectral determination of composition and structure of melamine pyrolysis products

171

Korobkov, V. S. Spectroscopic manifestations of inter-molecular hydrogen bonds

174

Kolobova, V. N., and V. V. Zharkov. Quantitative determination of residual monomers in polystyrene by ultraviolet absorption spectra

178

Ledentsov, Yu. K., and E. N. Borodina. Absorption spectra of blood serum under the effect of ionizing radiation and low temperature

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Card 13/15

BOYTSOV, Ye.N.; FINKEL'SHTEYN, A.I.

Spectrophotometric method for the analysis of melamine and the products of its hydrolysis: ammeline, ammelide, and cyanuric acid. Zhur.anal.khim. 17 no.6:748-750 S '62. (MIRA 16:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza, Moskva.

(Melamine—Spectra) (Ammeline—Spectra) (Ammelide—Spectra)
(Cyanuric acid—Spectra)

FINKEL'SHTEYN, A.I.

Interdependence of interatomic distances in bonds formed by the carbon atom. Trudy po khim.i khim.tekh. no.1:21-25 '63.

(MIRA 17:12)

FINKEL'SHTYIN, A.I.

Use of the constants of Badger's formula for expressing the
anharmonic constants of molecules. Opt. i spektr. 14 no.5:
726-727 My '63. (MIRA 16:6)

(Molecular rotation)

MUSHKIN, Yu.I.; FINKEL'SHTEYN, A.I.

Spectrophotometric determination of a basic substance in commercial
urea. Zav.lab. 29 no.7:805-806 '63. (MIRA 16:8)

1. Dzerzhinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo
i proyektnogo instituta azotnoy promyshlennosti i produktov organi-
cheskogo sinteza.

(Urea) (Spectrophotometry)

MUSHKIN, Yu.I.; FINKEL'SHTEYN, A.I.

Molecular structure of cyanourea. Zhur.ob.khim. 33 no.6:1883-1885
Je '63. (MIRA 16:7)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
azotnoy promyshlennosti i produktov organicheskogo sinteza.
(Urea)

MUSHKIN, Yu.I.; FINKEL'SHTEYN, A.I.; BALABANOV, G.P.; TEPLOVA, Z.G.

Infrared and ultraviolet spectra of some derivatives of terephthalic acid. Zhur.ob.khim. 33 no.10:3249-3252 0 '63.
(MIRA 16:11)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

ROGINSKAYA, TS.N.; FINKEL'SHTEYN, A.I.; MUSHKIN, Yu.I.

Infrared spectra of the products of interaction of isocyanates
with hydrogen chloride. Zhur.ob.khim. 33 no.12:3928-3932 D '63.

(MIRA 17:3)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut
azotnoy promyshlennosti i produktov organicheskogo sinteza.

FINKEL'SHTEYN, A.I.; SUKHORUKOV, B.I.; MUSHKIN, Yu.I.

Optical study of the molecular structure of cyanamide and its derivatives. Part 4: Tautomerism of cyanamide and cyanamidine in solutions. Zhur.fiz.khim. 37 no.2:290-293 F '63.

(MIRA 16:5)

1. Dzerzhinskiy filial instituta azotnoy promyshlennosti.
(Cyanamide—Optical properties) (Tautomerism)

MUSHKIN, Yu.I.; FINKEL'SHTEYN, A.I.

Isomer of cyanourea. Zhur.ob.khim. 34 no.5:1691-1693 My '64.
(MIRA 17:7)

1. Gosudarsudarstvennyy institut azotnoy promyshlennosti i
produktov organicheskogo sinteza.

FINKEL'SITEYN, A.I.; BOYTSOV, Ye.N.; MUSHKIN, Yu.I.

Spectrophotometric method of analysis of multicomponent mixtures by absorption in the ultraviolet. Zav. lab. 30 no.1: 44-45 '64. (MIRA 17:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

FINKEL'SHTEYN, A.I.; ZHUKOVA, G.A.

Photocolorimetric determination of small amounts of cyanates.

Zav. lab. 30 no.8:943 '64.

(MIRA 18:3)

1. Dzerzhinskiy filial Gosudarstvennogo nauchno-issledovatel'skogo
i proyektного instituta azotnoy promyshlennosti i produktov
organicheskogo sinteza.